

STARTING LIFE IN SCOTLAND IN THE NEW MILLENNIUM:

**POPULATION REPLACEMENT AND THE  
REPRODUCTION OF DISADVANTAGE**

**Heather E. Joshi  
and  
Robert E. Wright**

The Allander Series

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## **SPONSOR'S FOREWORD**

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Scotland's future depends, quite literally, on the size and calibre of the new generations of Scots who will take our country forward. Nothing could be more important to that future than the renewal of Scotland's population and the investment that the country is preparing to make in its people, its new born in particular. It is therefore entirely appropriate to look at population trends in Scotland and at how to avoid the reproduction of disadvantage.

ScottishPower welcomes the opportunity to support the Allander Series and, through the thought-provoking work of Professor Joshi and Professor Wright, to bring the diverse requirements of future generations of Scots to public attention and debate.

A company's ability to recruit and retain skilled staff is vital to its future competitiveness. Clearly, the continued decline in Scotland's population would have an impact on our ability to do this.

I am therefore privileged to be able to introduce the work of two such eminent authorities as they set out the challenges we face in reversing this trend.

Ian Russell  
Chief Executive, ScottishPower



## INTRODUCTION

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### By Wendy Alexander, MSP

Scotland has spent too long reflecting on her past glories and on futile attempts at recapturing them. It is time to start looking to a new future for Scotland. Many Scots have a growing conviction that as part of this new future the nation needs to focus on higher growth. The Allander Series is dedicated to responding to this opportunity by catalysing a debate about achieving improved, sustainable growth.

The Series brings together some of the world's leading economists to assess how Scotland can best respond to the challenge of globalisation, of European enlargement and of devolution. The authors were chosen not only because of their outstanding expertise in economics but also because of their understanding of its application to policy. In a world where the economic challenges facing nations are frequently common, global and complex, their papers will help set a policy agenda that brings the best global research insights to bear on Scottish circumstances. Scotland can become a place where, in future, new policy ideas and their creative implementation come together.

The Series, which is conducted under the auspices of the Fraser of Allander Institute at the University of Strathclyde, is non-partisan and has attracted the support of leading

corporations, entrepreneurs, academics and politicians. By focussing on how outsiders see Scotland it is designed to stimulate a far-reaching internal debate about the future of the Scottish economy and develop our understanding of the nation's future opportunities.

This pamphlet is the third in the Series, which will run through the winter and spring of 2003/04. It is written by Heather Joshi, Professor at the Institute of Education in London and Director of the Millennium Cohort Study and Professor Robert Wright of the University of Stirling, and focuses on Starting Life in the new Millennium in Scotland. Professor Joshi's path-breaking research examines opportunity from the perspective of the next generation. She argues that a policy for 'New Scots' must be about more than migration encompassing policies to help raise Scottish fertility rates. Professor Joshi also discusses how Scotland might arrest the transfer of disadvantage between the generations. The public policy implications for supporting parenthood and diminishing inherited disadvantage more effectively are profound.

Professor Robert Wright, a Canadian by birth, is also Scotland's foremost demographer. His collaboration in this paper has developed the insights about the dimensions of Scotland's 'demographic challenge' and how a new approach to migration could contribute, not only to arresting further population decline, but also to enhancing future economic growth. Professors Joshi and Wright's contributions are timely as Scotland seeks to understand changing demographic patterns, including lower levels of out-migration, but also a declining birth-rate. They outline the long-term policy directions that the nation must consider if she wishes to create a more supportive environment for New Scots, whether foreign born or raised by tomorrow's parents.

Migration and fertility rates are live policy issues across the world and reflect our wider ambitions for this Series. The Series will culminate in a book designed to set a future research agenda for business and policy makers across Europe. In the new conditions of greater economic integration due to globalisation and EU enlargement, creating the conditions for economic growth represent a challenge throughout Europe. A common EU pattern is emerging. Whilst monetary policy through Monetary Union is managed at supra-national level and fiscal management remains largely the preserve of nation states, it is at regional level where the greatest opportunities lie to develop new and innovative supply-side policies. Policy makers across the continent are looking for those interventions, at regional level, which can support higher productivity-led growth, and generate a consensus on policy reform.

Our conviction is that Scotland has a remarkable set of assets on which to build. So long as we are not beholden to our past Scotland can become a test bed for a unique mixture of both the American spirits of enterprise and of European solidarity. Scotland has much to offer, she is a natural home for knowledge-based businesses, a place of technological advancement and possesses a people who value and support skills and learning. Devolution has enhanced the possibilities for further economic, cultural and social change.

This Series aims to set the agenda for that change.



STARTING LIFE IN SCOTLAND IN THE NEW MILLENNIUM:

## **Population Replacement and the Reproduction of Disadvantage<sup>1</sup>**

Heather E. Joshi and Robert E. Wright

### **01 INTRODUCTION**

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Scotland, in line with the rest of Europe, is experiencing low rates of child-bearing and its population is ageing. This does not necessarily mean that people in Scotland are going grey at a faster rate than they used to. Rather, it means that there is an increasing proportion of elderly people in its population, with more people who are growing old than are growing up. The “birth dearth” and “population greying” are not unconnected: low fertility is the key influence on the age structure of a population as well as the rate of population growth.

This paper is about the renewal of the Scottish population. The main focus is on cradles rather than graves and the

<sup>1</sup> This paper is largely based on new data from the Millennium Cohort Study, funded by the Economic and Social Research Council, and a consortium of Government departments including the Scottish Executive who funded a boost of the sample in Scotland. The comments received from Wendy Alexander, Jo Armstrong, Brian Ashcroft, Diane Coyle and John McLaren on early drafts of this paper were most helpful. The assistance of Kelly Ward, Jackie Goossens and the Millennium Cohort Study team is gratefully acknowledged. However, the authors are fully responsible for all remaining errors and shortcomings.

conditions into which new Scots are being born. We look at the circumstances of individual families in the context of economic opportunities and public policies. These circumstances not only affect both the timing and probability of family formation, but also influence the life chances of those who are born. One of the main features of low fertility throughout Europe is that child-bearing is being postponed to ages towards and above 30 and away from ages in the teens or the twenties, which was the norm in previous generations. In many countries this postponement is socially selective, for it is the more highly educated women with careers to combine with children who are delaying childbearing. The new evidence presented in this paper shows how the polarization of family formation is particularly strong in Scotland – and that family polarization has several related dimensions. It appears that the reproduction of Scottish population is more characterised by the reproduction of disadvantage than the reproduction of excellence.

## 02 POPULATION AGEING IN SCOTLAND

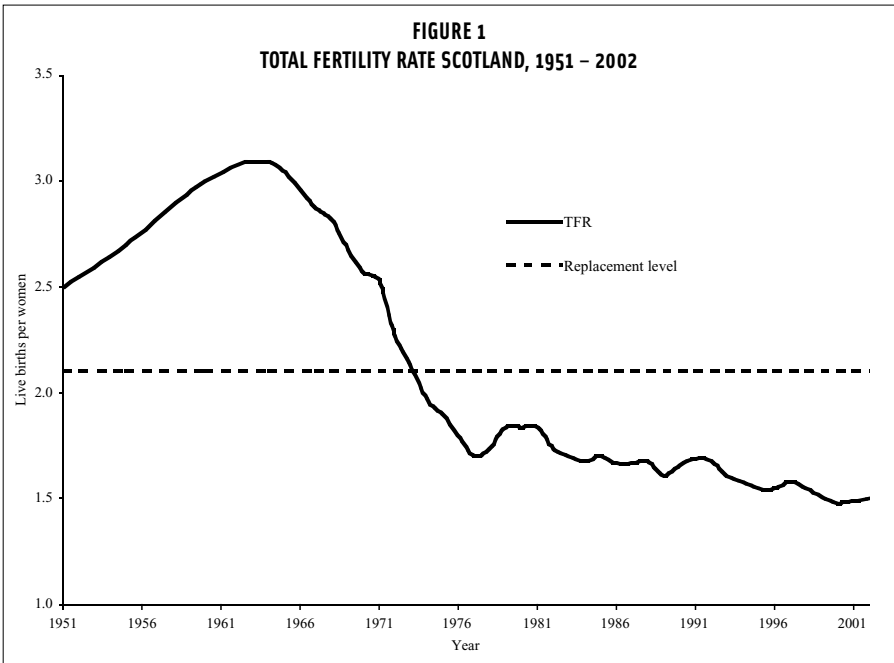
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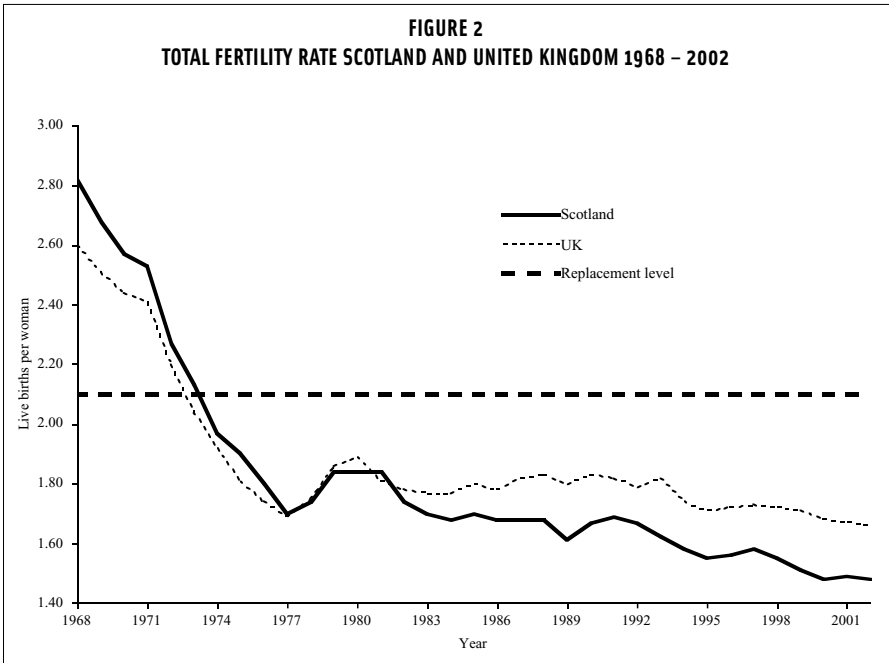
Before turning to details of how many cradles are being filled (and by whom), it is important to appreciate the broader background of the changing size and structure of the Scottish population. To interpret it as simply as possible, population ageing is the redistribution of relative population shares away from the younger to the older age groups. Population ageing is caused by interactions between the three main demographic variables: fertility, mortality and migration. Like most industrialised nations, the population of Scotland is expected to age rapidly over the next few decades. At the same time it is the only country in the UK whose absolute numbers are expected to decline from the 5,062,011 people counted on Census Day, April 29, 2001 (General Register Office for Scotland, 2003; Shaw, 2003).

If current demographic trends continue, one outcome of the ageing process will be a large increase in the number of individuals of pension age and a sizeable decrease in the number of people of working age. This will result in an increase in the demand for state-supplied health-care, housing, pensions, and other services consumed by the elderly (see Wright, 2002a). At the same time, the population base that is expected to pay for this increase – essentially people of working age – will become progressively smaller, both in absolute numbers and as a share of the total population (see Wright 2002b). There is a growing

consensus that the Scottish government will quickly find itself without the necessary resources to accommodate the changes in demand caused by population ageing. Nevertheless, it will be expected to increase expenditure in these areas. If it does not – or cannot – it will pay dearly at the ballot box, since a greying electorate will not vote for a government seen as ignoring their interests.

The main cause of Scotland’s population ageing is low fertility. Figure 1 shows the total fertility rate for the period 1951 to 2002. This indicator summarizes current child-bearing at different ages as the total number of children a woman would have if she passed her entire span of ages from 15 to 49 experiencing this year’s chances of having a birth at each age.

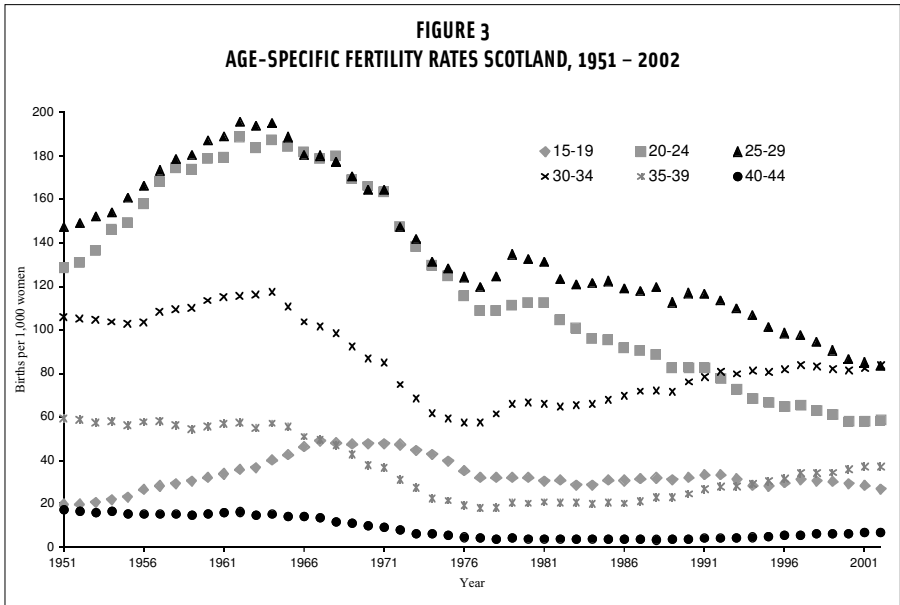




In 1951 in Scotland, it was 2.5 births per woman, well above the so-called replacement level of 2.1 births per woman, the number that is required in the long term to replace a generation. In the 1950s, and into the early 1960s, fertility increased, peaking at 3.1 births per women in 1964 – a period usually referred to as the baby boom. However, since 1965 the trend has been downwards. Currently the total fertility rate is less than 1.5 births per women, which is well below replacement and is less than half the rate at the peak of the baby boom. It is also interesting to note, as shown in Figure 2, that over the past two decades, the total fertility rate in Scotland has been below that for the United Kingdom as a whole. It is the lowest of the four UK countries.

This pattern of “boom and bust” is elaborated in Figure 3, which shows the trends in births per woman by age for the period 1951 to 2002. In what used to be the peak child-bearing ages, in their twenties, women’s fertility has declined continuously since the mid-1960s, from nearly one birth per year per 5 women. The trend is in the opposite direction for women in their thirties. In fact, among women aged 30-34, fertility has recently overtaken the rates for women under the age of 30, suggesting an upward shift of the age of child-bearing. The fertility rate for women aged 25-29 and for those aged 30-34 stands at one in twelve. Women over 30 now account for nearly half of all births. The proportion of teenage women giving birth has always been relatively low and it also fell during this period. In 2001 teenage mothers represented 28 per thousand of the population of women aged 15-19. Teenage

**FIGURE 3**  
**AGE-SPECIFIC FERTILITY RATES SCOTLAND, 1951 – 2002**



mothers represented 8.5% of all births in Scotland in 2001, compared with 7.4% in the UK.

Falling mortality – delayed departure to the grave – has also played a role in population ageing. As in most industrialised countries, there has been a considerable increase in life expectancy in Scotland across all age groups during the past century. For example, in 1951, life expectancy at birth was 68.7 years for women and 64.4 years for men. By 2001, it had risen to 78.6 years for women and 73.1 years for men. However, despite this impressive progress, improved mortality has not been a main determinant of population ageing. The fact that older people are living longer does reinforce the ageing of the population, but it is not a key cause because mortality has declined at all ages and therefore its effect on the age distribution has largely been largely neutral (see Wright, 2004b for a formal demonstration of this point).

Migration has also been a factor contributing to population ageing although, like mortality, its overall impact has been very small. Throughout most of the period 1951-2001 the number of emigrants from Scotland was larger than the number of immigrants, leading to population loss. However, currently the number of immigrants is roughly equal to the number of emigrants. Immigrants and emigrants tend to share many common socio-economic characteristics, including age. On average, both tend to come from the younger age groups. This means that for most of this period Scotland lost more young people than it gained, which clearly contributed to population ageing. However, the scale of net migration has not been particularly large when measured relative to the total size of the population. More specifically, in this period net migration never exceeded 1% of the total population (and rarely reached one-half of a percentage point).

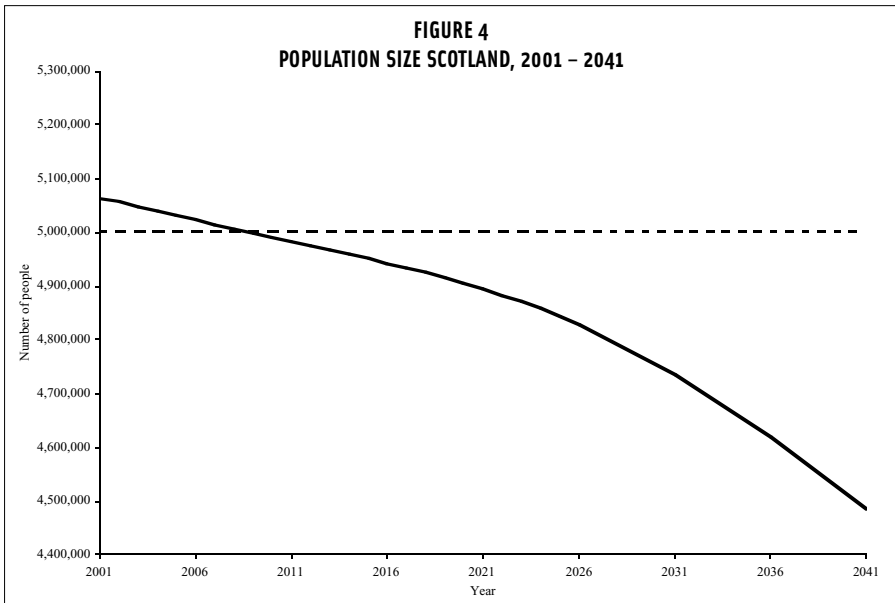
There is a view that (on average) those people who emigrate are more skilled and more educated (and perhaps younger) than the people who immigrate. That is, even though the overall numbers balance out, Scotland is a net loser as emigration is eroding the skill and education base of the population. We are aware of no solid empirical evidence that supports this claim, although the Scottish population is somewhat better educated than the rest of the UK on average. For the moment, it should be treated as an important hypothesis that needs to be tested. There are unfortunately no data-sources currently available for an adequate analysis, although there is a project currently underway – the *Scottish Longitudinal Study* – that is linking data from the 1991 and 2001 census to allow comparison of a larger sample of individuals who have moved between constituent countries of the United Kingdom.

In sum, the current demographic situation in Scotland is a population with below-replacement level fertility, gradually decreasing mortality and zero net migration (see, Anderson, 2004). If there are no major changes in these factors, particularly fertility, the ageing of the population will accelerate quite dramatically in the coming decades. While it is not possible to predict the future, it is possible to forecast what the age distribution of the population will look like given a precise set of assumptions, by performing population projections. The most recently available set of population projections for Scotland produced by the *Government Actuary's Department* are based on an extrapolation of the demographic situation prevailing in 2001 (see GAD, 2002; GROS, 2003; Wright, 2004a). They assume in their main projection that a below-replacement level total fertility rate of 1.6 live births (which is slightly higher than the current rate) will prevail indefinitely,

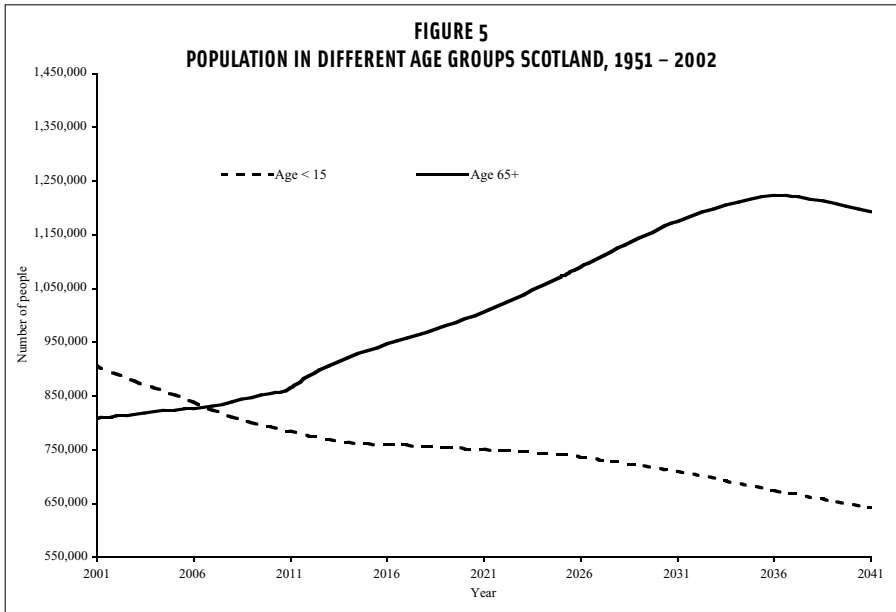


that life expectancy at birth will increase to 82.6 years for women and to 77.6 years for men by 2041, and that the net migration will be constant at minus 1,000 people per annum (compared to the current level of about zero). The projection period covers four decades, beginning in 2001 and ending in 2041.

On these assumptions, the Scottish population would continue to decline in absolute numbers. Figure 6 shows the projected size of the Scottish population in the period 2001 to 2041. On this set of assumptions, the Scottish population will fall below five million in 2009 and continue to decline to below four million by 2041. There will also be a large increase in the number of people aged 65 and older and a large reduction in the number of people aged 15 and younger. As shown in Figure 5, the number of people aged 65 and older is expected to rise from



about 800,000 in 2001 to about 1.2 million by 2041, while the number aged under 15 is expected to fall from about 900,000 to 650,000. In percentage terms, the share of the 65+ group will increase from 16% to 27% of the total population while the share of the under 15s and below group will decrease from 18% to 14%. Very soon, the population aged 65 and older will outnumber those under 15.

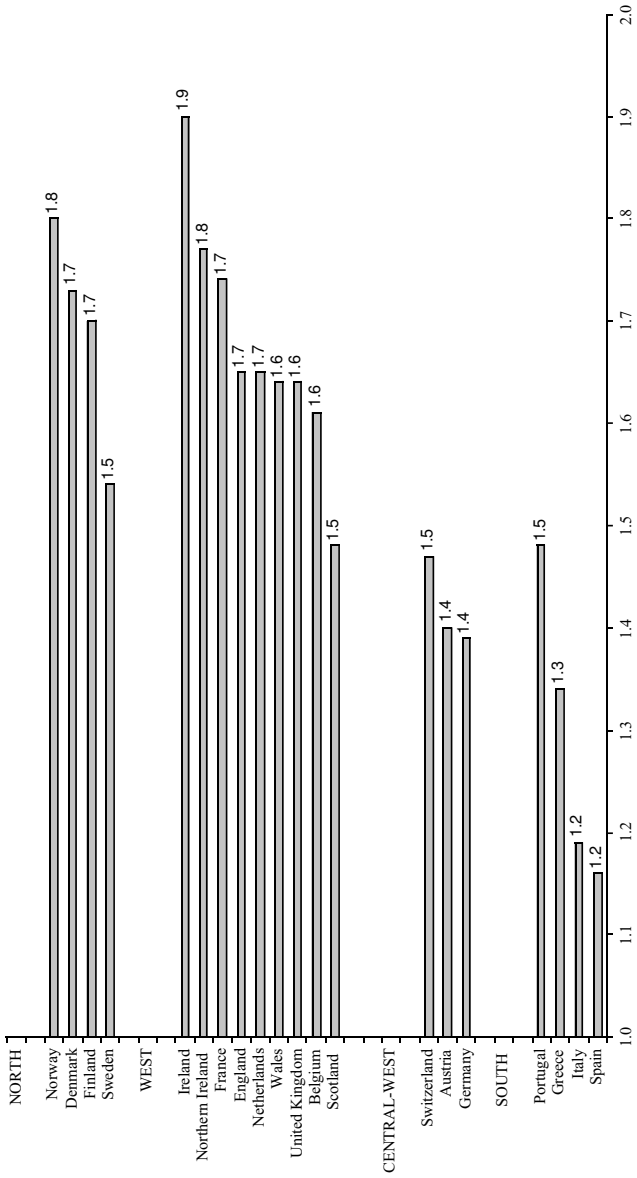


## 03 **SCOTTISH FERTILITY IN A EUROPEAN PERSPECTIVE**

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If we look at the picture across Europe, fertility has fallen everywhere in the last decades of the 20th century but varies considerably between countries. Currently, only Albania and the Faroe Islands have total fertility rates above the replacement level of 2.1 births per woman. Figure 6 illustrates the broad regional pattern in the larger countries of Western Europe of fertility declining as one moves from North to South and from the Atlantic seaboard towards central Europe. Much of Scandinavia, France and Ireland are maintaining fertility rates nearer the replacement level (at least over 1.7), while fertility is very low in central and southern Europe. A “Eurovision Contest” for low fertility would be won by Spain (1.16) with Italy (1.19) being a close runner-up. Bulgaria, Latvia and the Czech Republic, although not shown in Figure 6, also have total fertility rates below 1.2 births per women. Within the United Kingdom, Scotland currently has the lowest fertility rate. However, in this cross-national comparative perspective, its fertility rate is squarely in the middle of the European distribution, on a par with Portugal and Switzerland rather than Scotland’s immediate neighbours across the Irish or North Sea. It is worth noting that in the relatively minor matter of teenage fertility, Scotland resembles the rest of the UK which in turn exceeds most of the rest of Europe.

**FIGURE 6**  
**TOTAL FERTILITY RATES IN LARGER WESTERN EUROPEAN COUNTRIES, 2002**



## 04 **SUBSTITUTING QUALITY FOR QUANTITY**

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A falling proportion of children in the population will help limit the ratio of dependents to working people, but the long-term viability of a declining population will also need the productivity of upcoming generations to be maintained, or preferably enhanced, by increasing investment in children's skills and abilities. This means somehow, publicly or privately or both, investing in the health and education of the new generation, so that they are better equipped not only to experience a good quality of life, but also to become more productive citizens able to contribute to the supporting growing burden of old age dependency. The *New Home Economics* school of thought refers, somewhat awkwardly, to child "quality" substituting for child "quantity". For all the infelicity of the expression, particularly the eugenic overtones sometimes attributed to the idea of "quality", it is worth understanding that it is not only the number of births which matters. Children born into poverty have not only a poor experience of life during childhood, but a poorer chance of development, of enjoying opportunities for themselves, and of becoming productive citizens (see Gregg et al, 1999; Bynner et al, 2000; Feinstein, 2002; McCulloch and Joshi, 2001; McCulloch and Joshi, 2002; Pevalin 2003). We look next at who is, and who is not, having children in Scotland. Then we return to the question of the prospects for children born in

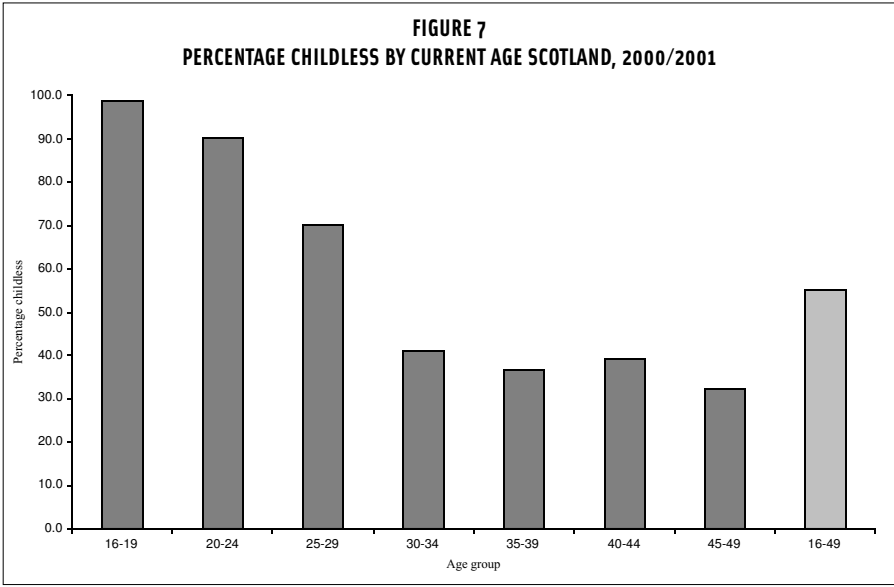
Scotland: which of them are likely to receive the investments, from their own families as well as the state, that will maximise their own quality of life as well as their potential contributions to society?

## 05 WHO IS HAVING AND NOT HAVING CHILDREN IN SCOTLAND?

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We now turn to the details of child-bearing trends in Scotland using data collected in wave 11 of the *British Household Panel Survey*, which covers the period 2000 to 2001 (see Brice et al., 2001a,b). For women who have reached the end of their child-bearing span, defined as women aged 45-49, the number of children born is 1.6. This value corresponds closely to the fertility level assumed in the *Government Actuary's Department* population projections discussed above. As the figure shows, the big increase in fertility, measured cumulatively by the number of children ever born to them, occurs between their late twenties and early thirties. Although we cannot predict that the young women currently under age 30 will end up with as many children as those who are currently older, it is likely given past trends that when their child-bearing spans end, their overall fertility will have continued to build up. The key question, of course, is how far will today's twenty-somethings catch up or even overtake their predecessors.

Figure 7 shows the percentages of women who remain childless at their current age. Although many of the younger women will have children in the future, for those in their late thirties or early forties, this is likely to be permanent. For women reaching the end of their child-bearing span, childlessness in Scotland is well above England and Wales, where it is around one in five (Rendall and Smallwood, 2003). The proportion of women in

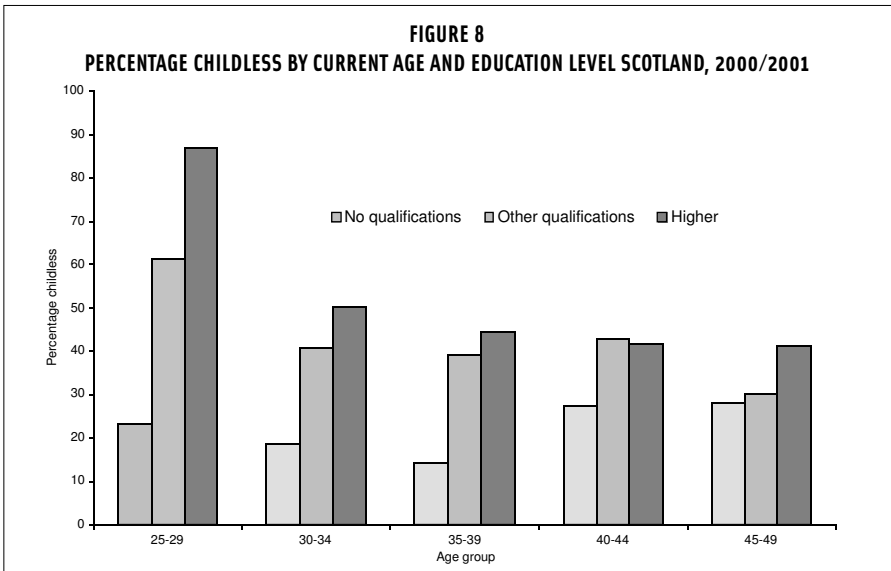


Scotland currently aged 40-44 who are childless is 32.5%, and 39.2% for women aged 45-49. Fewer than half the Scottish women now aged 16-49 have any children. This suggests that one important reason why fertility is lower in Scotland than in England and Wales is that many more women in Scotland do not have children at all.

Figure 8 shows childlessness by educational level (highest qualification obtained) for women over the age of 25 in Scotland. More highly educated women have fewer children during their twenties, but by age 45 the differences according to educational level diminish. The women with higher education or “any qualifications beyond basic school-leaving” each averaged 1.5 children, while those with “no qualifications” averaged 1.8 children. But the percentage of the highly educated who were childless in the 45-49 group is 41%, which is higher than the other two other educational level groups (Figure 8).



This cross-section snapshot suggests that the more educated women tend to start child-bearing later. It follows that the increase over time in the proportion of the female population with higher qualifications has contributed to the downward trend in fertility, although this may reflect more the lengthening of the average child-bearing period than a reduction in the fertility of each complete cohort. Although there is a lot more new evidence in the next section about the women who are having children in Scotland, we can already learn from these charts that the flight from early child-bearing has particularly involved more educated women. We can also note from Graham and Boyle (2003) that fertility rates are lower in urban than rural areas, which they attribute to there being more students, more expensive housing and more female employment in urban areas. Whether a buoyant labour market for women need be a deterrent to child-bearing is a question we consider later.



## 06 6. CHILDREN OF THE NEW CENTURY

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### 6.1. Background to the Survey

#### *More childlessness and smaller families in Scotland*

We now turn to more new evidence on those Scots who were born into the new century, the members of the *Millennium Cohort Study* (Smith and Joshi, 2002; Shepherd et al., 2003). These data were collected mostly during the year 2001 on children born between end-November 2000 and January 2002 in Scotland, at the time the children were nine months old. They are part of a major UK-wide study to which some comparison will be made. Another feature of this survey is that children living in areas of high child poverty were over-sampled to focus on the government's objective of alleviating child poverty. We provide a first glimpse into a large data set, focusing on the conditions into which children are being born. This has the twin function of seeing the costs and benefits of child-bearing from the point of view of those Scottish women who do have children and also what the prospects are for their children. Are they all starting out life in equally favourable circumstances, or is there a polarisation in their early conditions? Are some less likely, right from the outset, to be able to fulfil their potential for a high quality of life and a significant contribution to the Scottish economy?

Tables 1 and 2 present some summary statistics relating to the data set used in this paper. In Scotland there were 2,294 mothers in the sample and 18,273 in the United Kingdom as

whole. Scotland is over-sampled and there was also over-sampling in “disadvantaged” areas, defined as electoral wards with more than 38.4% of children in families receiving means-tested benefits (see Plewis, 2003). Allowing for sample weighting, 45% of the Scottish mothers in the survey were having their first child, slightly more than in the UK as a whole. In the rest of the UK more babies were second and higher order births than in Scotland at the time of the survey. This implies that smaller family size, and along with greater prevalence of childlessness, are the reasons behind the lower fertility rate observed in Scotland. Teenage mothers may be notorious but they were not in fact very numerous, constituting only 8% of mothers by their age at the time of the survey child’s birth. Half of the mothers were 30 years of age and older. Both proportions are slightly higher than in the UK as a whole: though Scotland has fewer births altogether, these births are more spread across the age range.

## 6.2 Age at Motherhood

### *Polarisation by age and “disadvantage” of starting child-bearing*

The age distribution of mothers at the time of their first birth is naturally somewhat younger than that for all current births. Classifying the mothers by age when they had their *first* child (rather than at the time they had their child in the Millennium cohort) identifies those who had started their families early, including those currently having second or later births at later ages. Because there are few teenage mothers, and the disadvantages of early child-bearing do not necessarily stop for women becoming mothers in their early twenties (Kiernan, 1997; Hobcraft and Kiernan 2001), we have somewhat arbitrarily defined “early-starters” as having a first (live-born) child under the age of 21. They constitute 24% of the Scottish

**TABLE 1**  
**MILLENNIUM COHORT STUDY MOTHERS BY ORDER OF COHORT BIRTH**  
**SCOTLAND AND THE UNITED KINGDOM**

Whether Cohort Baby is First Live Born	Mothers Age at Cohort Baby's Birth						Weighted Base	Sample Size (N)
	Up to 19 years old (%)	20 to 24 years old (%)	25 to 29 years old (%)	30 to 34 years old (%)	35 to 39 years old (%)	40 plus years old (%)		
<b>SCOTLAND</b>								
First Born	15%	20%	27%	27%	10%	1%	1011	1028
Later Born	2%	13%	23%	36%	22%	4%	1251	1266
Total	8%	16%	25%	32%	16%	2%	2262	2294
<b>ALL UK</b>								
First Born	15%	20%	29%	26%	10%	1%	7785	7626
Later Born	2%	13%	26%	36%	20%	3%	10418	10647
Total	7%	16%	28%	32%	15%	2%	18203	18273

Sample: All MCS Natural Mothers (Scotland is based on Mothers from Scotland and All UK is based on mothers from all countries). The ALL UK total sample size excludes a total of 689 cases, 28 fathers, 20 mothers who gave no data, 1 household with two 'natural' mothers and 640 cases due to refusals or partial interviews only. The weights to represent the Scottish sub-sample are different from those used to represent UK as a whole, so the values for the rest of the UK cannot be simply retrieved by subtraction (see Plewis 2003). Scotland total sample size excludes a total of 68 cases, 61 of which refused or only gave partial interviews. 4 cases represented mothers with no data, 1 foster mother and 2 natural fathers who did the main interview otherwise addressed to mothers

**TABLE 2**  
**MILLENNIUM COHORT STUDY MOTHERS**  
**BY ORDER OF COHORT BIRTH AND TYPE OF WARD, SCOTLAND**

Whether Cohort Baby is First Live Born	Mothers Age at Cohort Baby's Birth						Total	Weighted Base	Sample Size (N)
	Up to 19 years old (%)	20 to 24 years old (%)	25 to 29 years old (%)	30 to 34 years old (%)	35 to 39 years old (%)	40 plus years old (%)			
First Born	15%	20%	27%	27%	10%	1%	100%	1011	1028
Later Born	2%	13%	23%	36%	22%	4%	100%	1251	1266
<b>DISADVANTAGED (30 wards)</b>									
First Born	24%	24%	24%	19%	7%	1%	100%	397	528
Later Born	3%	21%	28%	30%	15%	3%	100%	481	638
<b>NOT DISADVANTAGED (32 wards)</b>									
First Born	9%	17%	29%	32%	11%	1%	100%	615	500
Later Born	2%	9%	20%	40%	26%	4%	100%	772	628
All Scotland Total*	8%	16%	25%	32%	16%	2%	100%	2262	2294

Sample: All MCS Natural Mothers in Scotland. (Mothers' age is taken from age at birth of cohort baby). In total the sample incorporated 32 non-disadvantaged sample wards and 30 Disadvantaged sample wards. All percentages are weighted to correct for differential sampling probabilities. Sample size is unweighted.

sample. We have also arbitrarily drawn a line to divide the other mothers into middling and late-starters, setting 28 as the age threshold for a “late starter”. Those who had their first births at age 28 or older constitute 43% of the Scottish sample.

We use this grouping of families for two reasons. First, it is the grouping that we will use in later analysis since early child-bearing has consequences for the family as a whole and not just for the first born. Second, this grouping is used to separate out within the group of currently older mothers those who had deferred child-bearing until or after their late twenties, and those who started earlier and now may be having second, third or later births. *As with the current age of mothers, Scotland has slightly more early entrants to motherhood and slightly more “deferrers” than the UK sample as a whole. Within Scotland, early-starters are most common in the “disadvantaged” areas and the deferred families most common in the other areas.* About half of the mothers outside the disadvantaged wards had started child-bearing late and only about one-sixth had started early. However, in disadvantaged wards the proportion who had started early is just over a third and the proportion who started late is just under a third.

Table 3 summarises a number of other ways in which the demographics of early and late child-bearing differ in Scotland. The current age of the three samples of mothers rises with the age at which they had started child-bearing. The current age of the earliest mothers is 23.5, those who had been 21 to 27 was currently nearly 29, and for those who had started child-bearing at 28 plus, average age was currently nearly 34. Just over half the mothers had had children previously. Those who had started earliest were more likely to have had more subsequent births, suggesting that earlier starts are associated with slightly larger families.

**TABLE 3**  
**SELECTED DEMOGRAPHIC CHARACTERISTICS OF MILLENNIUM COHORT STUDY MOTHERS BY AGE AT FIRST BIRTH**  
**SCOTLAND AND THE UNITED KINGDOM**

	Mothers Age at first ever live birth				ALL UK
	SCOTLAND				
	Early Up to 20	Middle 21 to 27	Late 28 plus	All	
% of mothers starting in age group	24%	33%	43%	100%	
Average age of mother at interview	23.5	28.7	33.8	29.6	29.6
% where cohort baby is first born	39%	37%	55%	45%	43%
Average number of children in household	2.0	1.9	1.6	1.8	1.9
% of lone mothers	33%	13%	5%	14%	14%
% of couples, legally married *	35%	69%	84%	70%	71%
Average age of fathers at interview (years)	28.2	31.8	35.6	33.0	33.0
Current age difference between mothers and fathers (yrs.mnths)*	4.5	3.1	1.7	3.3	3.3
Average current age of lone mothers (years)	22.0	26.7	33.2	25.0	25.4
% of lone mothers who never lived with cohort baby's father	67%	46%	56%	59%	56%
% lone mothers living with parents (cohort child's grandparents)	34%	21%	7%	26%	21%
% with low qualifications (none + nvq 1)	32%	15%	5%	15%	20%
% with tertiary qualifications (nvq 4 and 5)	6%	30%	59%	37%	34%
Maximum unweighted sample size**	592	751	925	2268	17864

\* Base is all natural mothers with resident or part-time resident partner

\*\* Unweighted sample of natural mothers for whom age at first birth known, before deletion of missing cases on particular variables

### 6.3 Partnership Status

*Lone motherhood is more prevalent amongst early-starters*

At the time of the survey, 14% of all the mothers were living without a partner. This proportion is more than double the average (33%) amongst early-starters, but only 5% amongst late-starters. Those who are living in couples are more likely to be legally married the older they started child-bearing – the mothers who started young are almost twice as likely to be co-habiting with their partner if they have one than to be legally married to him. The fathers in these couples (married or otherwise) were on average two years older than their partners and the age gap was bigger in the families where the mothers had had their first child young. Those mothers currently living alone were younger than the mothers who were living with partners, with an average age of 25. Of those mothers not living with a partner at the time of the survey, 59% had never lived with the cohort baby's father. This proportion rises to 67% amongst the mothers who had started child-bearing youngest. Some of the mothers living without partners were living with their own parents or with the baby's grandparents and this is also more likely amongst the youngest group of mothers (34%) than amongst the older ones (7%). Thus early child-bearing in Scotland, as elsewhere, is more likely mean starting without a partner and either remaining or becoming unpartnered.

### 6.4 Socio-economic Status

*Polarisation between the early and late mothers in education, health and area*

We can also see from Table 3 that the early-starters have fewer educational qualifications than late-starters: 32% of early-starters have low qualifications (none or the lowest NVQ



level), compared to 5% of late-starters. Conversely, only 5% of the women who had their first child at or over age 28 had low levels of qualifications and nearly 60% were qualified at the tertiary level. Putting this the other way round, only 3% of the mothers who were highly qualified by the time of the interview had started child-bearing at or before age 21, and 71% had started at age 28 or over.

Note also from the Table 3 that the Scottish mothers in the survey are more highly qualified than mothers in the UK as a whole. The generally higher levels of educational attainment in Scotland are reflected in a lower proportion of mothers with low or zero levels of qualification (15% in Scotland versus 20% in the UK as a whole) as well as the higher proportion with tertiary level qualifications (37% versus 34%). The association of early child-bearing with educational disadvantage and unstable partnerships could be either cause or effect, or both, and the interpretation of this association is discussed in greater detail below. For the moment, *we should consider an early start to child-bearing as a marker of a set of disadvantageous circumstances – whatever their making – from which many of newborn Scots are setting out.*

For mothers were also asked whether their pregnancy with the current cohort child was a “surprise”. As Table 4 shows, a much higher proportion of early-starters (72%), even those who are no longer themselves teenagers, reported that it was a surprise, although as many as 24% of late-starters were also surprised about their pregnancy. When further asked if they felt “unhappy or sad” about the prospect of having the baby, far fewer agreed – only 4% of late-starters were unhappy about the prospect of having the baby, but more, 20%, among early-starters.

**TABLE 4**  
**REPRODUCTIVE HEALTH INDICATORS OF MILLENNIUM COHORT STUDY MOTHERS BY AGE AT FIRST BIRTH**  
**SCOTLAND AND THE UNITED KINGDOM**

	Mothers Age at first ever live birth				
	SCOTLAND				ALL UK
	Early Up to 20	Middle 21 to 27	Late 28 plus	All	
<b>As percentage of all births</b>					
% who indicated that their pregnancy was a surprise	72%	46%	24%	43%	42%
% who felt unhappy about the prospect of having this baby	20%	9%	4%	9%	10%
Average birthweight (pounds)	6.92	7.16	7.07	7.06	6.98
% of those who ever tried to breastfeed cohort baby	42%	61	82%	66%	71%
Maximum unweighted sample size *	592	751	925	2268	17864
<b>As percentage of first live births</b>					
% who indicated that their pregnancy was a surprise	90%	54%	23%	45%	42%
% who felt unhappy about the prospect of having this baby	19%	6%	2%	6%	6%
Average birthweight (pounds)	6.8	7.0	6.9	6.9	6.8
% of those who ever tried to breastfeed cohort baby	41%	62%	85%	70%	76%
Maximum unweighted sample size *	231	286	513	1030	7628

\* Unweighted sample of natural mothers for whom age at first birth known, before deletion of missing cases on particular variables

**TABLE 5**  
**LIVING ENVIRONMENTS OF MILLENNIUM COHORT STUDY MOTHERS BY AGE AT FIRST BIRTH**  
**SCOTLAND AND THE UNITED KINGDOM**

	Mothers Age at first ever live birth			
	SCOTLAND			ALL UK
	Early Up to 20	Middle 21 to 27	Late 28 plus	All
% living in disadvantaged areas	58%	40%	27%	39%
% living in a flat	49%	25%	19%	28%
% who are local authority tenants	51%	20%	6%	20%
% who have damp/condensation in their homes	16%	9%	5%	9%
% who have no garden	20%	9%	4%	9%
% who are dissatisfied with the area that they live in	20%	8%	5%	10%
% indicating that noisy neighbours are very common	13%	4%	2%	5%
% indicating that rubbish or litter lying around is very common	15%	7%	4%	8%
% who indicate that there are safe places for children to play	52%	65%	78%	68%
% indicating that poor public transport is very common	9%	12%	14%	12%
Analysis by birth order				
% living in disadvantaged areas				
cohort baby first born	60%	44%	29%	39%
cohort baby not first	56%	38%	24%	38%
Maximum unweighted sample size *	592	751	925	2268
				17864

\* Unweighted sample of natural mothers for whom age at first birth known, before deletion of missing cases on particular variables

There are also large differences in the proportion of mothers in the different groups who ever tried to breastfeed. The survey suggests that 82% of late-starters attempted to breastfeed, while the figure for early-starters is only 42%. It is also worth noting that Scotland has distinctly lower rates of breastfeeding than the UK as a whole – 66% versus 71%. Amongst early-starters, the rates are lower for both Scotland and the UK at 41% and 50%, respectively. The lower chance of being breastfed, with its attendant benefits for health later on in life, is only one of the disadvantages which appear to be reproduced in the families whose mothers start childbearing early.

As Table 5 shows, nearly 40% of the sample of babies in Scotland was found to be living in disadvantaged areas at age nine months. The proportion is much lower if their mothers had started child-bearing late (27%) and much higher for mothers who had started child bearing young (58%). These contrasts are almost as strong for early and late-starters who have since moved on to have further children. This suggests that the disadvantages surrounding early first motherhood are carried through into later stages of family building, and it makes sense to look at all early mothers regardless of their current age.

## 6.5 Housing and Neighbourhood Characteristics

### *The polarisation carries over into housing and environment*

The same kind of contrast is apparent across various indicators of the environment by age at first motherhood. For example, nearly half (49%) of early-starters were living in flats, compared to (19%) of late-starters; 51% of early-starters are housed in local authority dwellings compared to only 6% of late-starters. The problem of “damp and condensation” was reported by 16% of early-starters and by 6% of later starters. “Access to a garden”

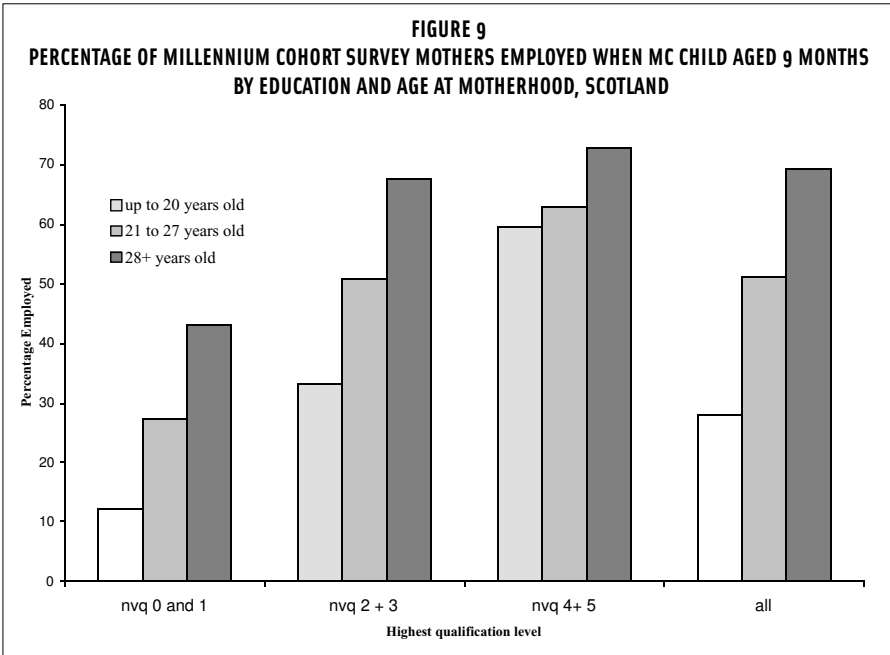
was almost universal in families who started child-bearing later in life – only 4% for late-starters did not have a garden, compared to 20% for early-starters.

When asked to rate the area that they lived in, 10% of the Scottish families expressed “dissatisfaction”. There are again sharp differences between early and late motherhood – 20% for early-starters and 5% for later starters. Amongst the factors that were mentioned as making the neighbourhood unsatisfactory were “noisy neighbours”, reported by 13% of early-starters and 2% of late-starters. However, when it comes to questions about the “availability of public transport”, the environments in which early-starters are living appear to be better supplied than the rest of Scotland since only 9% of them indicated that public transport was a “bad problem” compared to 12% overall. Altogether 68% of the mothers reported that they had access to “safe places for children to play”. Again there is a clear gradient by age of motherhood with 52% of early-starters and 78% of later starters reporting such access.

## 6.6 Income and Employment

*Employment status and income reflect the same polarised pattern*

The educational differences discussed above are also reflected in differences in occupational attainment. Amongst late-starters, 58% of those who had ever had a job had managerial or professional occupations compared to only 5% for early-starters. Of the latter group 72% had predominantly routine or semi-routine occupations in their latest job compared to 14% for late-starters. It is worth remembering that they are all mothers with babies aged nine months old. How many of them were currently employed, thereby combining motherhood with paid work? Only 16% overall were working full-time at the time of



the survey and 2% were still on maternity leave. The probability of being in full-time work increases with the age at which the woman became a mother – only 6% for early-starters but 23% for late-starters. More of the Scottish mothers were combining motherhood with part-time work (38% overall) but again it was late-starters who were more likely to be doing so – 46% compared to 23% for early-starters. The chances of employment are associated with education but differences in education do not account for all of the differences in employment rates by age of motherhood: as Figure 9 shows, there are sharp differences within education groups by age of motherhood.

Most of the women in couples are living with another earner so the fact that they may not themselves be earning does not mean that the family has no income. However, 7% of the

couples had nobody earning. Joblessness within families is highly correlated with poverty, and this rate was three times higher (22%) for early-starters compared to late-starters (2%). Not only are the younger mothers less likely to have jobs themselves, but so are their partners. Amongst the mothers living without partners, 71% were not earning, and again the chances of this being the case were greatest for early-starters – 79% compared to 50% for lone mothers who had their first child at or over 28.

Turning to sources of income provided by the state, 35% of the families were receiving at least one of the means-tested benefits listed in the note to Table 6. The proportion for early-starters was 72% and 13% for late-starters. A preliminary inspection of the family income data sets an arbitrary threshold for 'low' family income at £350 per week for couples, £235 for lone parents, and counts all other cases, including the 8 percent who did not report their income, as not having low income. On this basis, 40% of the families are classified as having 'low or very low' income, but again this hides a span from 75% to 20% between early and late-starters.

How does the concentration of low income among the early-starters compare with the concentration of such low income in disadvantaged areas? This question is relevant to the issue of how policy should be designed to reach families in need. Assume that the 40% in the low income group identified above (the bottom two fifths, labelled "poor") were the target of an anti-poverty policy which was not to be directly income-tested, but delivered on the basis of residence in target areas – say, for the sake of argument, in the wards such as those selected for the survey as having high child poverty rates. Almost as many families (39%) lived in the areas designated "disadvantaged" as

**TABLE 6**  
**EARNING AND FINANCES OF MILLENNIUM COHORT STUDY MOTHERS BY AGE AT FIRST BIRTH**  
**SCOTLAND AND THE UNITED KINGDOM**

	Mothers Age at first ever live birth				ALL UK
	SCOTLAND				
	Early Up to 20	Middle 21 to 27	Late 28 plus	All	
% in social class - management/professional*	5%	25%	58%	35%	34%
% in social class - semi-routine/routine*	72%	38%	14%	35%	36%
% employed, full time	6%	14%	23%	16%	13%
% employed, part time	23%	37%	46%	38%	35%
% of couples with two earners	29%	51%	68%	55%	51%
% of couples, no earners	22%	5%	2%	7%	6%
% of lone parents who are 'workless'	79%	65%	50%	71%	78%
% of all in workless families	42%	14%	4%	16%	16%
% who receive means tested benefits (MTB)**	72%	37%	13%	35%	35%
% in low/very low income band***	75%	42%	20%	40%	40%
Analysis by birth order - % in low/very low income band***					
cohort baby first born	80%	47%	21%	40%	40%
cohort baby not first	73%	40%	18%	41%	41%
Analysis by type of area - % in low/very low income band***					
living in Disadvantaged ward	82%	54%	30%	57%	57%
living in other areas	67%	35%	16%	30%	30%
% experiencing financial difficulties****	14%	9%	5%	9%	10%
Maximum unweighted sample size *****	592	751	925	2268	17864

\*social class based on current or last occupation of those who ever had one. 74 unweighted cases are missing on occupation for the early mothers, 14 for the middle and 14 for the late mothers

\*\*MTB refers to those who receive one or more of the following: Jobseekers Allowance, Income Support, Working Families Tax Credit or Disabled Persons Tax Credit

\*\*\* low income is below £12,200 net income per annum for lone parents and £18,200 per annum for couples

\*\*\*\* Financial difficulties refers to those who are finding it difficult or very difficult to manage financially

\*\*\*\*\*unweighted sample of natural mothers for whom age at first birth known, before deletion of missing cases on particular variables



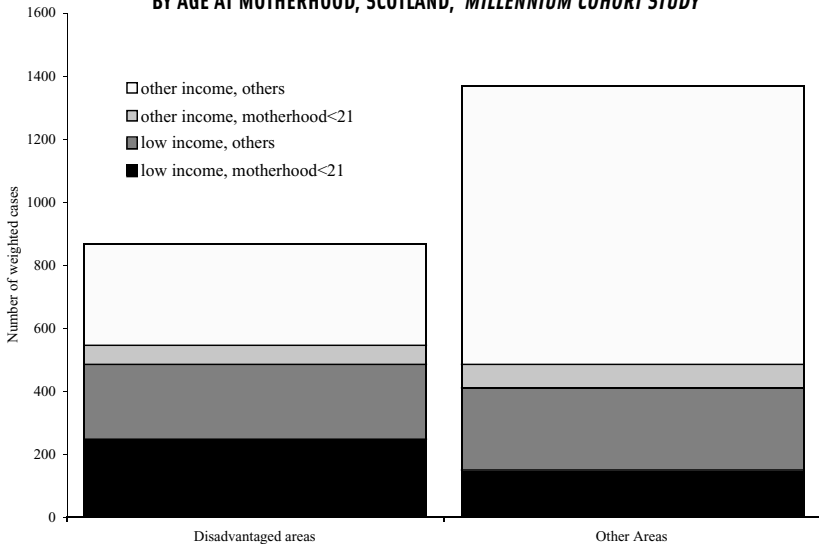
we have classified as “poor”, but they were not all the same people. For 21% of the sample were “poor” and living in deprived areas and therefore almost as many, nearly 19%, were “poor” living outside disadvantaged areas. Another 17% of the total were “non-poor” living in the disadvantaged areas. This can be seen in Figure 10, where the two darkest shaded areas represent the low-income families and the lighter two shaded areas the “non-poor”. There are roughly as many “poor” in each type of area, and although there are more “non-poor” outside the disadvantaged areas, they also have a substantial presence there too. Therefore, were anti-policy poverty to be targeted only on the families living in these areas, almost half the “poor” would be missed and almost half the target area population would be “non-poor”. While areas are convenient for targeting many types of social policy, they miss some potential beneficiaries (see Joshi, 2001).

Would targeting by age of first motherhood be any more efficient at reaching low-income families? This assumes it would be practicable to target all mothers who had ever had a birth below a given age, set here at 21, not just those who are still very young. In one sense, it would be more efficient, because such a high proportion, 75%, of the early mothers are “poor”. On the other hand, early mothers, even when set the age threshold at 21, are a relatively small group. There are substantial numbers on low income (over half) who started childbearing after 21, or about 22% of the whole population. Figure 10 shows how early mothers are found in both types of area but are not very many among the “non-poor”. Of all low-income families, 44% were early-starters, 54% lived in disadvantaged areas and 28% satisfied both criteria. Were age to be used as a criterion for identifying families at risk of

poverty, it would be necessary to investigate whether 21 was the best cut-off age. Age could also be used in conjunction with other criteria; perhaps to identify those at risk outside designated “disadvantaged” areas, rather than to disqualify those within them. This question warrants further investigation but this very simple illustration may serve to show the limitations of using single indicators to target populations on low income – unless of course income itself can be used as the criterion for eligibility.

Table 6 also reports a subjective measure of financial circumstances. When the mothers were asked how they were managing financially, only 5% of late-starters reported that they were finding it “difficult or very difficult” to manage, but the share of early-starters reporting difficulties was much higher at 14%.

**FIGURE 10**  
**DISTRIBUTION OF FAMILY INCOME BANDS OVER DISADVANTAGED AND OTHER AREAS**  
**BY AGE AT MOTHERHOOD, SCOTLAND, *MILLENNIUM COHORT STUDY***



## 6.7 Time and Psychological Well-being

### *High malaise also amongst early-starters*

Finally we have reports from the mothers about other aspects of child-bearing – for example, whether they have “enough time to spend with their child”. Late-starters, particularly those who are employed, are more likely than early-starters to report that they do not have enough time to spend with their baby; 84% of early-starters reported that they have “plenty of time” with their baby compared to only 62% for late-starters. However, this extra time with the baby does not seem to outweigh the relative difficulties faced by these different groups of mothers of young babies. In answer to a simple question designed to detect post-natal depression mothers were asked if they “felt low or sad” since their birth. This was more likely for early-starters – 41% compared to 26% for late-starters.

Asked about their current state of mind on a set of questions selected from the malaise inventory, 32% of early-starters scored as having “high malaise” (i.e. 3 out of 9 symptoms) compared to 18% for late-starters. Mothers were also asked to rate themselves on a “life satisfaction in general” scale that ranges from 1 (low) to 10 (high). Most scored between 8 and 10, indicating a generally high level of satisfaction. However, 16% scored themselves at 6 or less. Of this group, 28% were early-starters and 10% were late-starters. This difference suggests that younger mothers seem to be having a more difficult time in their child’s first year of life. This is not only a cost to them personally but is also potentially a cost to their baby.

**TABLE 7**  
**INDICATORS OF WELL-BEING OF MCS MOTHERS, BY AGE AT FIRST BIRTH IN SCOTLAND**

WELL-BEING	Mothers Age at first ever live birth				
	SCOTLAND				ALL UK
	Early Up to 20	Middle 21 to 27	Late 28 plus	All	
% of mothers reporting feeling low or sad since cohort birth	41%	34%	26%	32%	33%
% in 'high malaise' = 3 or more symptoms out of 9	32%	24%	18%	24%	24%
% indicating that they do not spend enough time with baby	7%	15%	23%	16%	16%
% indicating that they spend plenty of time with baby	84%	71%	62%	70%	70%
% indicating low life satisfaction (6 or less out of a scale of 10)	28%	17%	10%	16%	19%
Analysis by birth order					
% in 'high malaise' = 3 or more symptoms out of 9 cohort baby first born	32%	22%	19%	22%	22%
cohort baby not first	33%	26%	18%	24%	25%
Maximum unweighted sample size *	592	751	925	2268	17864

\* unweighted sample of natural mothers, before deletion of missing cases on particular variables

## 07 INTERPRETING THE DIFFERENCES BETWEEN EARLY AND LATE FAMILY FORMATION

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The evidence from the *Millennium Cohort Study* tells us a lot about the different sorts of families involved in the trend towards postponed child-bearing. In Scotland, as in the rest of the UK, families where child-bearing has been delayed are generally better off. The residual minority having children exceptionally early are characterized by a number of disadvantages. Part of the answer to this is that women who postpone child-bearing are generally combining motherhood with employment, and may indeed have timed their family-building to allow them to establish their careers first, as well as (relatively) secure partnerships with their children's fathers. The opposite may very likely be the case for early and teenage mothers. However, it would be unwise to assume that the disadvantages we observe are all consequences of early child-bearing. It is also likely that those who had poor prospects, of either educational advancement or of good jobs, choose (or fail to avoid) to become mothers early, and would not be doing well in education or employment anyway.

Although this survey does not provide direct evidence on what would have happened to the early mothers if their first child had come later, there is recent work on British data which has been able to address this issue. For example, Ermisch and Pevalin (2003) and Hawkes (2003) (each looking at Great

Britain-wide data) conclude that early disadvantage influences the likelihood of early child-bearing more than poor educational attainments are influenced by giving birth early. Ermisch and Pevalin also conclude that the poor labour market record of teenage mothers in the 1970 Birth Cohort Study is largely due to earlier disadvantages. While this implies that the adverse consequences of teenage motherhood are often overstated, they do find that original disadvantages are compounded as a result of early motherhood, particularly in respect of mental health and of later partnerships. These other studies suggest – though they cannot prove – that the disadvantages observed amongst those who started child-bearing early are unlikely to be just the result of unwise decisions to forgo better life opportunities. It is more likely the case that in many cases the course taken was not unreasonable, given their bleak alternatives and disadvantaged family circumstances. Whatever the balance of cause, choice and consequence, there are likely to be cumulative mechanisms at work. And whatever brought about early motherhood, it was not a choice made by the child. Likewise, whether or not deferred child-bearing was deliberately chosen, later-born children stand a better chance of finding themselves with parents better equipped – emotionally and financially – to bring them up.

The polarisation in timing of child-bearing by the woman's level of educational attainment seen here is not internationally universal, though it is found in the rest of the UK and in southern European countries such as Spain and Italy. The differentials are much smaller in Sweden and France, for example (see Ekert-Jaffé et al., 2002; Gutierrez Domench, 2003). The analysis in this paper suggests that the greater

dispersion in age of starting child-bearing in Britain might be attributable to worse opportunities for prolonged education, training or employment for women in their late teens along with fewer opportunities for less-skilled women to become part of a two-earner couple. For the more highly skilled, combining employment with motherhood is increasingly likely, when they are ready for it, particularly in countries which have long-established regimes of “family friendly” policies in employment and child-care (such as Sweden and France). Where these facilities are not universal, women with less earning power are more likely to see participating in the labour market and home-making as alternative – and not complementary – activities. Those who do end up starting early may have less reason to wait than those who do not, although we have little evidence of early child-bearing being a conscious strategy.

## 08 **POLICY MEASURES TO INCREASE THE COMPATIBILITY OF CHILDREARING AND EMPLOYMENT**

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In the Scandinavian countries and France there is a more compressed age range for child-bearing. These countries have better-developed sets of policies aimed at aiding the combining of employment and motherhood across the whole social spectrum. At the centre of these policies is some form of subsidized child-care. In Scandinavia there are policies that allow for significant leave from the labour market, for fathers as well as mothers, and the periods of paid leave are longer than those available in the UK. Policies to spread such facilities in Scotland might have the effect of reducing the delay by late-starters and even averting some childlessness among high earners. They are less likely to accelerate early motherhood by those not engaged in the labour market. Paradoxically, though, they could encourage delay by early-starters. There would still be a positive effect on total fertility if it reduced the number of women remaining childless or permitted late-starters to have more children, although stable or buoyant job prospects would also help.

International evidence on aiming policies at demographic targets is not very encouraging, however (see Graham and Boyle, 2003). The main argument for such policies is not so much the demographic impact as the fact that they improve choice and the quality of life at all ages of motherhood. There



is a range of policies which facilitate the compatibility of motherhood and employment – including employment practices, hours of work, parental leave, tax and social insurance provisions, poverty relief, childcare provisions, opening hours of commercial and public services, and the child-friendliness of public space (Dex and Joshi, 1999). We focus here just two of the areas on which the *Millennium Cohort Study* provides evidence – employment leave for fathers and the provision of affordable child-care.

### 8.1 Fathers' Involvement

Childrearing is no longer just a mother's business. For that reason the survey interviewed fathers as well as mothers, when they were present and willing to answer. In the survey 86% of families consisted of two parents and in Scotland 88% of the fathers identified responded. Few of these fathers actually quit jobs on the arrival of a baby, but many took some form of leave. For example, 76% of fathers in Scotland took some "time off work" at the time of the birth (compared to 79% for the UK). Only half of these reported taking paternity leave, and very few mentioned parental leave. Most in fact used annual or sick leave. We cannot tell whether this leave was paid or unpaid. In addition, we cannot tell if these fathers would have preferred to take more leave, particularly if it was paid. However, it would seem that the practice of fathers taking leave might be better established, especially for the partners of early mothers, as they report the lowest rates of leave-taking.

Table 8 summarizes some other indicators of fathers' involvement with the children in Scotland. These measures are roughly similar in Scotland and UK as a whole, with one notable exception – 66% of Scottish fathers report changing

**TABLE 8**  
**FATHERS INVOLVEMENT WITH MILLENNIUM COHORT STUDY BABIES**  
**SCOTLAND AND THE UNITED KINGDOM**

	Employment Status of Father				All	ALL UK
	SCOTLAND - weighted data			Non-employed		
	Full Time	Part Time				
% who look after baby on their own at least once a day	28%	53%	53%	53%	31%	31%
% who look after baby on their own less than once a week	38%	16%	16%	21%	36%	41%
% who change their babys nappy at least once a day	65%	72%	72%	74%	66%	57%
% who who change their baby's nappy less than once a week	13%	12%	12%	18%	13%	20%
% indicating that they spend plenty of time with baby	17%	63%	63%	87%	25%	21%
% indicating that they do not spend enough time with baby	60%	20%	20%	6%	53%	57%
% indicating low life satisfaction (6 or less out of a scale of 10)	11%	21%	21%	39%	14%	15%
Maximum unweighted sample size *	1424	51	51	179	1654	12882

\* These totals relate to cases who had partner information, who answered question, and also who had answered number of hours worked each week.

the baby's nappy "at least once a day" compared to a UK average of 57%.

Within Scotland, fathers' involvement with their babies is affected by their labour force status. For example, 60% of those employed full-time report they "do not spend enough time with the baby", compared with only 6% of those out of employment. However, as with mothers, having plenty of time with the baby is not enough to compensate the effect of being out of work on general life-satisfaction. They are most likely (39%) to report a low life satisfaction score compared with 11% of the fathers employed full time. If fathers were able to increase their parenting activities without dropping out of employment, there could be benefits of combining employment with fatherhood as well as motherhood.

## 8.2 Child-care

Child-care is still mainly the mothers' responsibility, although fathers play an important role in the portfolios of arrangements. Table 9 reports the main child-care arrangements of the mothers in employment when their child was nine months old. Around one quarter of them relied on the fathers as the main source of care, fewer if the mother's job was full-time. The largest category of main childcare arrangement was grandparents (36% in Scotland and 31% in the UK as a whole). Including other sources of informal help such as neighbours, friends and other relatives, and the mother remaining responsible for the child while on the job, the vast majority of the arrangements were informal (71% in Scotland), although some of them were paid. Nurseries and crèches accounted for one sixth of all arrangements, and nannies, au pairs and childminders for one in eight. Mothers with full-time jobs were

**TABLE 9**  
**CHILD-CARE ARRANGEMENTS OF MILLENNIUM COHORT STUDY BABIES**  
**SCOTLAND AND THE UNITED KINGDOM**

	SCOTLAND			ALL UK*
	Respondent's Employment Status			
	Full Time	Part Time	ALL*	
Main carer of cohort child while mother at work:				
Father	17%	25%	23%	25%
Grandparent(s)	32%	38%	36%	31%
Other relatives/friends or neighbours	10%	7%	8%	7%
Nanny, au pair, childminder	17%	10%	12%	15%
Creche/nursery	20%	16%	17%	17%
Other, including respondent	4%	4%	4%	5%
% who used informal childcare as main source of care	63%	74%	71%	68%
% who used formal care as main source of care	37%	26%	29%	32%
% who paid for childcare, whether formal or informal	54%	38%	42%	46%
% of those paying who receive childcare tax credit	29%	38%	35%	49%
Maximum unweighted sample size	363	841	1204	8157

\* Includes a few cases with known childcare arrangements for work who were not currently employed. All main respondents including up to 21 fathers in UK

more likely to pay for child-care (54%) than those in part-time jobs (38%). Child-care tax credit reached 35% of those who paid for child-care in Scotland (compared to 49% in the UK as a whole). These estimates suggest that there could be room for expansion of the provision of formal child-care in Scotland, but there may be too few personnel qualified to care for children under the age of one. It is therefore all the more important for public policy to support the informal carers.

## 09 CONCLUSIONS

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The process of political devolution in Scotland has increased the demand for evidence-based economic research concerned with Scottish-specific issues that are policy relevant. Such research (which has been sadly lacking in the past) is crucially needed by the departments of the Scottish Executive in order to design and execute policy effectively. However, evidence-based research by its very nature demands that rich and detailed data sources, both at the micro- and macro-level, are available. This paper has demonstrated that the *Millennium Cohort Study* could assist in the serious examination of some vital issues. The analysis presented here has just scratched the surface of what can be done. It is our hope that this paper will encourage others to delve more deeply into the first round of survey results. The survey of the cohort at age three is already under way, and we will soon be able to gauge the progress made by those born at the start of the new millennium.

The early part of this paper sketched a picture of Scotland's future demography that could be bleak indeed. Population ageing is going to present the Scottish people and government with serious economic and social challenges. If these challenges are not met through effective public policy there is a real risk that the standard of living in Scotland will track the decline of the population.

Some argue that the ageing of the Scottish population can be slowed through increased immigration. Although this is technically correct, the scale of the immigration needed would be very large (see Wright, forthcoming). This is not to say that increased immigration or prevention of out-migration will not make a valuable contribution to the Scottish economy, especially in the shorter term. For instance, it can help plug skill shortages. Immigration can also have other beneficial spillover effects on the wider economy. But the numbers needed to make a demographic impact over a longer period are prohibitively large.

It is low fertility that is the main cause of population ageing. An increase in fertility, on a sufficient scale, would have a favourable impact on population ageing. In this sense policies successfully aimed at increasing fertility could be money well spent, although governments have seldom had much success in targetting the birth rate. Still, there may be scope for encouraging those with the lowest and latest fertility, particularly the most educated, to bring births forward and in some cases eschew their childlessness by enhancing the compatibility of careers and parenthood. Resources such as child tax credits and baby bonds may encourage people to embark on the responsibilities of parenthood, and there is scope for the labour market, education and other public services to be more consistently family-friendly, attuned to the needs of young families.

Even if the chances of encouraging Scottish people to have more children are somewhat uncertain, there is all the more need for policies to ensure those children who are born attain their full potential. Scotland needs to invest in its

people, including the newborn. The polarisation of family circumstances suggests that some children are at risk of much poorer life chances than those born into the more advantaged families with older parents and somewhat fewer siblings.

Yet the more advantaged families should be just as concerned about what happens a generation down the line. The generation of women who are now avoiding or delaying motherhood will find in the mid 21st century that they have fewer of their own offspring around as potential providers of care. Where generations are lengthening, the women in the middle are more likely to find themselves in the uncomfortable “pivot” position of simultaneous responsibility for elders and children.

The main social concern highlighted in this paper, however, is the diminishing group who are still becoming mothers very early in their lives. Girls who become teenage mothers lack competence with contraceptives, but they often lack a good many other skills as well. If it is just labour market competence which is lacking, there is case for arguing that motherhood is not a bad solution for their transition to adulthood. On the other hand, one may argue that they also lack the maturity, people skills and material resources needed to raise their children as successfully as women who start the enterprise later. In this narrower sense, public concern about teenage mothers is not misplaced. Policies to make it easier to combine careers with motherhood are unlikely to encourage these largely unemployed young women to have their largely unplanned births any earlier; indeed it can be argued that they create an incentive to develop a foothold in the labour market which at present seems relatively pointless. Evidence from the *Millennium Cohort Study* (along with other survey



results) suggests that the target group for interventions to support parenting should ideally not just be the inhabitants of particular areas (as in the local programmes of English *Sure Start*), and not just mothers of particular ages. The target should be all families who are struggling to provide a fulfilling upbringing to their offspring, and fathers as well as mothers may very well need this support.

The gradual improvement of the terms on which parenthood can be combined with employment – or to put it the Swedish way, the terms on which workers can be parents – has yet to trickle down the social scale and the age-at-motherhood gradient. It should not be taken as a prescription that everyone should work their way out disadvantage and poverty while simultaneously raising at a minimum, the 2.1 children needed for population replacement. While many women do combine paid and unpaid work, the alternative of specializing in the unpaid and often unacknowledged work of caring for young and old should also be a viable and valued option. Policies aimed at supporting “workless” parents while at the same time enhancing the compatibility of the “double burden” of parenthood and employment, would bring improve the standard of living of families in Scotland, contribute to a broader work/life balance, and arguably improve the productivity of the next generation.

Such an approach might also bring about some demographic dividend in the form of a revived Scottish fertility rate, although this is hard to guarantee. It is also possible that the level or composition of net migration might be affected by the family-friendliness of policies in Scotland as well as the buoyancy of labour markets. This consideration remains a speculation, but it is worth thinking about the possibility that

the quality of life may have some impact on the quantity of people through migration as well as fertility. The parents and potential parents of the new century's children may not be the most vociferous political lobby, but they hold Scotland's future in their cradles. The aim of this paper is to bring their diverse requirements to public attention. Policy that nurtures the nurturers is worth having for its own sake.

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